

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION**

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|-------------------------------|---|---------------------------|
| PANTECH CORPORATION and | § | |
| PANTECH WIRELESS, LLC, | § | |
| | § | |
| Plaintiffs, | § | |
| | § | |
| v. | § | NO. 5:22-CV-00069-RWS-JBB |
| | § | |
| ONEPLUS TECHNOLOGY (SHENZHEN) | § | |
| CO., LTD., | § | |
| | § | |
| Defendant. | § | |

CLAIM CONSTRUCTION MEMORANDUM OPINION AND ORDER

Pantech Corporation and Pantech Wireless, LLC (together “Pantech”) allege infringement by OnePlus Technology (Shenzhen) Co., Ltd. (“OnePlus”) of claims from eight United States patents.

Four of the patents—U.S. Patents 9,548,839, 10,869,247, 11,012,954, and 11,172,493—relate to wireless communications. *See, e.g.*, ’839 Patent at 1:24–27 (“The present invention relates to a mapping method for frequency and orthogonal frequency division multiplexing (OFDM) symbol regions of a signal transmitted on downlink in a cellular OFDM wireless packet communication system.”); ’247 Patent at 1:36–40 (“[T]he present invention is related to a method and apparatus for coordinating Node-Bs and supporting enhanced uplink (EU) transmissions during handover.”); ’954 Patent at 1:29–33 (“The present invention relates . . . to a method and apparatus for configuring UL synchronization”); ’493 Patent at 1:20–26 (“[T]he present invention relates to resource allocation and signaling methods . . . to efficiently make the scheduling decision”).

The remaining four patents—U.S. Patents 8,587,710, 8,893,052, 9,063,654, and

10,162,490—concern mobile device displays, inputs, and their operations. For example, the ’710 Patent teaches “a method for controlling a picture displayed on a display of a mobile terminal.” ’710 Patent at 1:16–20. The ’490 Patent “relates to a method for displaying transmission status of a multimedia messaging service[.]” ’490 Patent at 1:22–30. *See also* ’654 Patent at 1:15–17 (“The following description relates . . . to a smart touch technology to support a display of an overlapped object.”); ’052 Patent at 1:16–20 (“The present invention relates to a system and method for controlling a mobile terminal application using a gesture . . .”).

The parties dispute the scope of about 20 terms and phrases, with OnePlus challenging many of the terms as indefinite. Having considered the parties’ briefing and arguments of counsel during a June 21, 2023 hearing, the Court resolves the disputes as follows.

I. GENERAL LEGAL STANDARDS

A. Generally

“[T]he claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). As such, if the parties dispute the scope of the claims, the court must determine their meaning. *See, e.g., Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1317 (Fed. Cir. 2007) (Gajarsa, J., concurring in part); *see also Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), *aff’g*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc).

Claim construction, however, “is not an obligatory exercise in redundancy.” *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Rather, “[c]laim construction is a matter of [resolving] disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims” *Id.* A court need not “repeat or restate every claim term in order to comply with the ruling that claim construction is for the court.” *Id.*

When construing claims, “[t]here is a heavy presumption that claim terms are to be given their ordinary and customary meaning.” *Aventis Pharm. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) (citing *Phillips*, 415 F.3d at 1312–13). Courts must therefore “look to the words of the claims themselves . . . to define the scope of the patented invention.” *Id.* (citations omitted). The “ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1313. This “person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

Intrinsic evidence is the primary resource for claim construction. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) (citing *Phillips*, 415 F.3d at 1312). For certain claim terms, “the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Phillips*, 415 F.3d at 1314; *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (“We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history.”). But for claim terms with less-apparent meanings, courts consider “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean . . . [including] the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Phillips*, 415 F.3d at 1314.

B. Means-Plus-Function Claiming¹

A patent claim may be expressed using functional language. *See* 35 U.S.C. § 112 ¶ 6 (pre-AIA); *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 & n.3 (Fed. Cir. 2015) (en banc in relevant portion). Under 35 U.S.C. § 112 ¶ 6, a structure may be claimed as a “means . . . for performing a specified function,” and an act may be claimed as a “step for performing a specified function.” *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002). When it applies, § 112 ¶ 6 limits the scope of the functional term “to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” *Williamson*, 792 F.3d at 1347.

But § 112 ¶ 6 does not apply to all functional claim language. There is a rebuttable presumption that § 112 ¶ 6 applies when the claim language includes “means” or “step for” terms, and a rebuttable presumption it does *not* apply in the absence of those terms. *Masco Corp.*, 303 F.3d at 1326; *Williamson*, 792 F.3d at 1348. These presumptions stand or fall according to whether one of ordinary skill in the art would understand the claim with the functional language to denote sufficiently definite structure or acts for performing the function in the context of the entire specification. *See Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372 (Fed. Cir. 2015) (noting § 112 ¶ 6 does not apply when “the claim language, read in light of the specification, recites sufficiently definite structure” (quotation marks omitted) (citing *Williamson*, 792 F.3d at 1349; *Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1099 (Fed. Cir. 2014))); *Masco Corp.*, 303 F.3d at 1326 (noting § 112 ¶ 6 does not apply when the claim includes an “act” corresponding to “how the function is performed”); *Personalized Media Commc’ns, LLC v. I.T.C.*,

¹ Each of the patents at issue has an effective filing date before the effective date of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 3, 125 Stat. 284, 285-93 (2011). The Court therefore refers to the pre-AIA version of the statute.

161 F.3d 696, 704 (Fed. Cir. 1998) (noting § 112 ¶ 6 does not apply when the claim includes “sufficient structure, material, or acts within the claim itself to perform entirely the recited function . . . even if the claim uses the term ‘means.’” (quotation marks and citation omitted)).

Construing a means-plus-function limitation involves two steps:

The first step in construing such a limitation is a determination of the function of the means-plus-function limitation. The next step is to determine the corresponding structure described in the specification and equivalents thereof. Structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.

Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc., 248 F.3d 1303, 1311 (Fed. Cir. 2001) (citations and quotations omitted). The corresponding structure “must include all structure that actually performs the recited function.” *Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). But § 112 does not permit “incorporation of structure from the written description beyond that necessary to perform the claimed function.” *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999).

“[S]tructure can be recited in various ways, including [by using] ‘a claim term with a structural definition that is either provided in the specification or generally known in the art,’ or a description of the claim limitation’s operation and ‘how the function is achieved in the context of the invention.’” *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1366 (Fed. Cir. 2022) (quoting *Apple, Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1299 (Fed. Cir. 2005)). For § 112, ¶ 6 limitations implemented by a programmed general-purpose computer or microprocessor, the corresponding structure described in the patent specification must usually include an algorithm for performing the function. *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). In that case, the corresponding structure is not a general-purpose computer but rather the special-purpose computer programmed to perform the disclosed algorithm. *Id.*; *Aristocrat Techs. Austl. Pty Ltd. v.*

Int'l Game Tech., 521 F.3d 1328, 1333 (Fed. Cir. 2008). However, certain claims may recite functions that are coextensive with the structure disclosed, making it unnecessary to disclose more structure than a general-purpose processor for those functions inherent to general-purpose processors. *See Katz Interactive Call Processing Patent Litig. v. Am. Airlines, Inc.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (holding that the disclosure of a general purpose processor was sufficient because the recited functions of “processing,” “receiving,” and “storing” could be achieved without special programming).

C. Indefiniteness

“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). The claims “must be precise enough to afford clear notice of what is claimed” while recognizing that “some modicum of uncertainty” is inherent due to the limitations of language. *Id.* at 908.

“Indefiniteness must be proven by clear and convincing evidence.” *Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). And in the context of § 112 ¶ 6, “[t]he party alleging that the specification fails to disclose sufficient corresponding structure must make that showing by clear and convincing evidence.” *TecSec, Inc. v. IBM*, 731 F.3d 1336, 1349 (Fed. Cir. 2013) (quoting *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1380–81 (Fed. Cir. 2001)).

II. THE LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art is the skill level of a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In resolving the appropriate level of ordinary skill, courts consider the types

of and solutions to problems encountered in the art, the speed of innovation, the sophistication of the technology, and the education of workers active in the field. *Id.* Importantly, “[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

Here, neither party proffers a level of ordinary skill in the art for analysis—nor does either party suggest resolving the proper constructions of the disputed terms turns on resolving the appropriate level of ordinary skill. Nonetheless, because the level of ordinary skill often is important to claim-construction analysis, and having reviewed the briefing, patents, and Dr. Vojcic’s declaration, the Court relies on the following description for purposes of this order:

- for the four “wireless communications” patents, a skilled artisan would have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and three-years experience in the design and development of wireless communications systems; and
- for the four “mobile terminal” patents, a skilled artisan would have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and three-years experience in the design and programming of user applications and interfaces for mobile terminals.

III. THE DISPUTED TERM FROM U.S. PATENT 10,869,247

A. Background

The ’247 Patent relates “to a method and apparatus for coordinating Node-Bs and supporting enhanced uplink (EU) transmissions during handover.” ’247 Patent at 1:36–40. During a “soft” handover from one cell to another, a wireless device (or WTRU) may establish multiple connections with multiple base stations (or Node-Bs). *Id.* at 2:12–13. This, however, may cause

issues with scheduling and H-ARQ information—generally, acknowledgments (ACKs) and “no acknowledgements” (NACKs) of messages—because the terminal may receive conflicting information from more than one base station, possibly resulting in corruption of the H-ARQ or other information. *Id.* at 2:13–16. For example, the terminal may not understand certain scheduled uplink information is intended for data with previous transmission failures because of the handover process. *See id.* at 8:10–22. While this can be somewhat addressed by placing the ACK/NACK generation function in the radio network controller—i.e., the high-level device that controls the base stations—that “presents a significant delay to the ACK/NACK process,” which hinders performance. *Id.* at 2:23–29.

To help address the problem, the patent teaches

including H-ARQ process identification in the UL scheduling information that is sent from the source Node-B to the WTRU. By receiving the scheduling information from the source Node-B, the WTRU knows that the scheduled transmission is for specific data associated with HARQ process identification sent together with the scheduling information.

Id. at 8:13–22 (reference numbers omitted). Claim 1 addresses that teaching:

1. A wireless transmit/receive unit (WTRU) comprising:
 - at least one transceiver; and
 - a processor;
 wherein the at least one transceiver and the processor are configured to cause the WTRU to:
 - transmit, using a hybrid automatic repeat request (H-ARQ) process, a data block to a base station;
 - receive uplink scheduling information from the base station, wherein the uplink scheduling information includes a H-ARQ process identification for the H-ARQ process; and
 - determine whether to retransmit the data block based on the received uplink scheduling information and not based on whether the WTRU has received a negative*

acknowledgement (NACK) from the base station.

'247 Patent at 8:30–44 (emphasis added).

B. “processor . . . configured to cause the WTRU to: transmit . . . ; receive . . . ; and determine whether to retransmit . . . ” ('247 Patent, Claim 1)

| Pantech's Construction | OnePlus's Construction |
|---|---|
| Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) | Means plus function claim limitation under 35 U.S.C. § 112 ¶ 6 Function: transmit, using a hybrid automatic repeat request (H-ARQ) process, a data block to a base station; receive uplink scheduling information from the base station, wherein the uplink scheduling information includes a H-ARQ process identification for the H-ARQ process; and determine whether to retransmit the data block based on the received uplink scheduling information and not based on whether the WTRU has received a negative acknowledgement (NACK) from the base station. Structure: None (Indefinite) |

The parties dispute whether this is a means-plus-function term. OnePlus asserts the phrase “both lacks ‘sufficiently definite structure’ and . . . simply recites a multiplicity of ‘function[s]’ without reciting sufficient structure for performing [those] function[s]”. Dkt. No. 40 at 2 (citing *Williamson*, 792 F.3d at 1339 (Fed. Cir. 2015); brackets by OnePlus). OnePlus concludes the phrase is a “generic placeholder” because the claim does not specify how the “processor” is connected to other components in the claims and the written description is “entirely silent” regarding the term. *Id.* at 3 (citing cases). From there, OnePlus asserts the phrase is indefinite because it fails to identify structure corresponding to the claimed function. *Id.* at 5.

Pantech proffers two reasons this phrase should *not* be construed as a means-plus-function term. First, the term does not use “means,” which gives rise to a presumption against the applicability of § 112 ¶ 6. Dkt. No. 37 at 2. Second, the term itself connotes sufficiently definite

structure. *Id.* at 2–3. Moreover, Pantech argues that even if the Court were to construe this as a means-plus-function term, the specification sets forth sufficient corresponding structure because “[a] POSITA would understand that ‘conventional electronic circuitry (such as a processor) could be used to accomplish the claimed invention.’” *Id.* at 3–4 (citing ’247 Patent at 1:58–2:1, 4:29–34, 6:34–45, 7:28–40, 8:10–22).

There is more than one way to recite structure, including the use of “a claim term with a structural definition that is either provided in the specification or generally known in the art, or a description of the claim limitation’s operation and how the function is achieved in the context of the invention.” *Dyfan, LLC*, 28 F.4th at 1366 (citations omitted) (quoting *Apple, Inc.*, 757 F.3d at 1299). Here, most of what is recited in Claim 1 was generally known at the time of invention. For example, transmission of H-ARQ information, as recited in the first limitation of the “wherein” clause, was well-known in the art. *See* ’247 Patent at 1:58–62 (noting, in the Background, “performance is greatly enhanced with the use of [H-ARQ]”). Similarly, both (1) receiving uplink scheduling information from the base station and (2) determining whether to retransmit data based on received H-ARQ information were known. *See id.* at 1:47–52 (noting, in the Background, “[o]ne of the developments is to move the functions for scheduling and assigning uplink (UL) physical channel resources from a radio network controller (RNC) to a Node-B [because the latter] can make more efficient decisions and manage [uplink] radio resources better than the RNC”); *see also id.* at 2:15–16 (noting “[a] WTRU may receive conflicting EU transmission scheduling from more than one Node-B”).

In essence, an “inventive” aspect of Claim 1 is the inclusion of H-ARQ information in the scheduling information and making the determination about whether to retransmit the data based on that scheduling information. Even more simply, it’s knowing where to look in the incoming

message for the H-ARQ information. Thus, the structure-connoting term, which really includes both the transceiver and the processor,² is coupled with a description of the operation such that sufficient structural meaning is conveyed to a skilled artisan.

Each of the cases on which OnePlus relies is distinguishable. In *Rain Comput., Inc. v. Samsung Elecs. Am., Inc.*, 989 F.3d 1002, 1007 (Fed. Cir. 2021), the disputed term was “user identification module” rather than “processor.”³ The court held “module” was a nonce word, the prefix “user identification” did not impart structure because it merely describes the function of the “module,” and the claim language failed to provide any structure for performing the claimed functions.

In *Velocity Patent LLC v. FCA U.S. LLC*, 2018 WL 4214161 (N.D. Ill. Sept. 4, 2018), the disputed term was “processor subsystem” rather than “processor.” In fact, the patent at issue differentiated between the two, and the expert of the party challenging the applicability of § 112 ¶ 6 “admitted during his deposition that a ‘processor subsystem’ *is not necessarily a microprocessor* and that the meaning of ‘processor subsystem’ depends on each claim limitation’s function.” *Velocity Patent*, 2018 WL 4214161, *7 (noting “[t]he patent explains only what a ‘processor subsystem’ *may be*: ‘the system includes a processor subsystem, *for example*, a microprocessor’”) (emphasis added).

Finally, OnePlus points to *MTD Prods. Inc. v. Iancu*, 933 F.3d 1336 (Fed. Cir. 2019), as an

² The claim recites how “the at least one transceiver *and* the processor are configured” ’247 Patent at 8:32–33.

³ In its response, OnePlus attributes a quote from *HTC Corp. v. IPCom GmbH & Co.*, 667 F.3d 1270, 1280 (Fed. Cir. 2012)—“[t]he processor and transceiver amount to nothing more than a general-purpose computer”—to *Rain Comput.* Dkt. No. 40 at 3. But the appellate court made that statement in the context of deciding whether there was corresponding structure for the claimed function, *not* the threshold question of whether the term was governed by § 112 ¶ 6. *See HTC Corp.*, 667 F.3d at 1278–80 (noting the parties agreed that “arrangement for reactivating” is a means-plus-function limitation).

example of the court construing a term with “some structural connotation still considered to be a means-plus-function limitation,” Dkt. No. 40 at 3, but this overlooks the Federal Circuit’s reasoning. In *MTD Products*, both the Federal Circuit and the Patent Trial and Appeal Board (“Board”) considered “mechanical control assembly” a nonce term. *Id.* at 1343. The Board, however, improperly relied on the specification’s description of a “ZTR control assembly” to conclude “mechanical control assembly” had an established structural meaning. *Id.* at 1344. “That the specification discloses a structure corresponding to an asserted means-plus-function claim term does not necessarily mean that the claim term is understood by persons of ordinary skill in the art to connote a specific structure or a class of structures.” *Id.*

Because the court presumes, in the absence of the word “means,” this is not a means-plus-function term, OnePlus must demonstrate by a preponderance of the evidence that the limitation fails to recite sufficiently definite structure. *See Dyfan, LLC*, 28 F.4th at 1370 (“In the absence of the word ‘means,’ Target bore the burden of demonstrating by a preponderance of the evidence that the ‘system’ limitation in the wherein clause fails to recite sufficiently definite structure.”).

Not only are OnePlus’s arguments not persuasive on that point, it omits any argument or evidence about a skilled artisan’s perspective on these issues.⁴ For the foregoing reasons, OnePlus has not carried that burden. Accordingly, the Court concludes this is not a means-plus-function term and will give this term a “plain and ordinary meaning” construction.

⁴ In fact, this is true regarding all terms for which the parties ask the Court to decide the applicability of § 112 ¶ 6. As noted *supra*, see Section II, OnePlus did not propose a level of ordinary skill in the art for analysis, much less explain how a skilled artisan would understand the claim language in light of the specification.

IV. DISPUTED TERMS FROM U.S. PATENT 11,012,954

A. Background

The '954 Patent relates to “a method and apparatus for configuring UL synchronization with respect to at least one Component Carrier (CC).” '954 Patent at 1:29–33. Generally, the claims recite receiving the typical control messages, random access preambles and random access responses for synchronization, but with a “Timing Advance (TA) value” in the random access response. For example, Claim 6, which includes both disputed terms from this patent, recites:

6. A communication apparatus for a user equipment (UE) comprising:
 - a memory; and
 - a processor operably coupled to the memory;
 wherein the processor, when executing program instructions stored in the memory, is configured to:
 - cause the apparatus to receive a Radio Resource Control (RRC) message through a primary Component Carrier (CC), wherein the primary CC belongs to a first uplink (UL) timing group, the RRC message comprises information related to a second UL timing group, which has been set by an evolved Node B(eNB), the second UL timing group includes a secondary CC;
 - cause the apparatus to receive information indicating a random access preamble;
 - cause the apparatus to transmit the random access preamble according to a non-contention selection, through CC one or more UL CCs, each of the one or more UL CCs transmitting the random access preamble being set as a delegate CC for a respective second UL timing group;
 - cause the apparatus to receive a random access response through the primary CC, *the random access response includes a Timing Advanced(TA) value for the secondary CC for the respective second UL timing group,*
 wherein each TA value is transmitted from the eNB for the

respective second UL timing group based on the transmitted random access preamble associated with the delegate CC of the respective second UL timing group; and

cause the apparatus to apply each TA value to the secondary CC for the respective second UL timing group.

'954 Patent at 27:62–28:29 (emphasis added).⁵

As the '954 Patent explains with reference to FIG. 2 (below):

In general, a UL radio frame i **220** may need to be transmitted at the same point in time as a point in time when a DL radio frame i **210** is transmitted, so as to perform communication between an eNB and a UE. However, a time difference may exist between the UE and the eNB due to propagation delay and the like.

Accordingly, a [timing advance] TA may be applied to enable the UE to transmit the UL radio frame i **220** a little earlier than the DL frame i **210** by taking the propagation delay into consideration, so that synchronization between the eNB and the UE may be obtained. An equation to calculate the TA may be expressed by Equation 1.

$$TA = (N_{TA} + N_{TA\ offset}) \cdot T_s \text{ seconds} \quad [\text{Equation 1}]$$

Here, N_{TA} denotes a value to be variable based on TA command information transmitted from the eNB, and $N_{TA\ offset}$ denotes a value set based on a frame structure. T_s denotes a sampling period.

'954 Patent at 6:29–45 (brackets in original).

⁵ The parties agree that “cause the apparatus to transmit the random access preamble according to a non-contention selection, through CC one or more UL CCs” should be understood as “cause the apparatus to transmit the random access preamble according to a non-contention selection, through one or more UL CCs.” The Court adopts this agreed construction. *See infra*, Section XI.

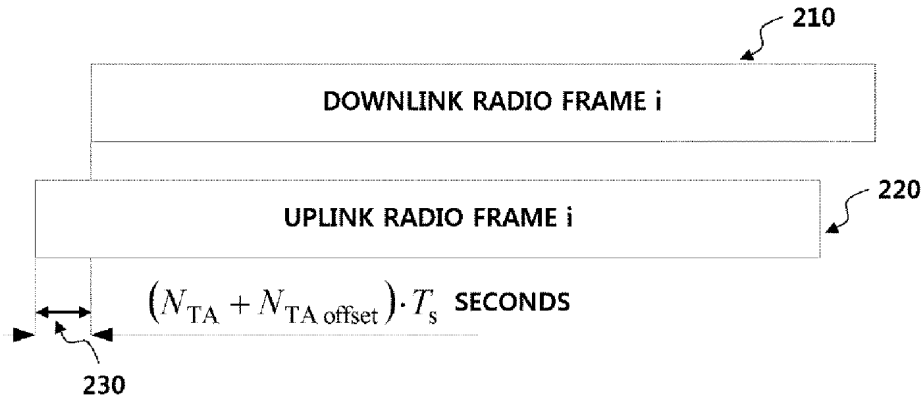


Figure 2 of the '954 Patent

B. “eNB” ('954 Patent, Claims 1, 4, 6, 9)

| Pantech's Construction | OnePlus's Construction |
|------------------------|----------------------------|
| base station | Plain and ordinary meaning |

This dispute concerns lexicography. Pantech asserts “[t]he specification uses ‘eNB’ as a shorthand for any base station embodying the technology of the invention.” Dkt. No. 37 at 5.

Pantech points to four excerpts from the specification as defining “eNB”:

- “The eNB or a cell may refer to a fixed station where communication with the UE is performed and may also be referred to as a Node-B, a base station transceiver system (BTS), an access point, and the like.” '954 Patent at 4:14–17.
- “The eNB or the cell may be construed as an inclusive concept.” *Id.* at 4:18–20.
- “In the specifications, the UE and the eNB are used as two inclusive transceiving subjects to embody the technology and technical concepts described in the specifications, and may not be limited to a predetermined term or word.” *Id.* at 4:24–27.
- “Hereinafter, a user terminal may be referred to as a UE, and a base station may be referred to as an eNB.” *Id.* at 8:27–28.

OnePlus, however, accuses Pantech of “conflat[ing] species with genus,” and stresses the applicants deliberately chose to use “eNB” rather than “base station” in the claims. Dkt. No. 40

at 6–7.

The Court agrees with OnePlus. Primarily, the excerpts on which Pantech relies are not sufficiently clear and explicit to be lexicography. *See Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1367–68 (Fed. Cir. 2012) (“Both [lexicography and disavowal] require a clear and explicit statement by the patentee.”). At most, the specification shows an eNB may be referred to as a Node-B, base station, or access point—not the other way around. And while two of the excerpts on which Pantech relies stress the term should be construed “inclusively,” *see* ’954 Patent at 4:18–20, 4:24–27, such a statement without more does not give rise to lexicography. Accordingly, the Court rejects OnePlus’s claim of lexicography and will give this term a “plain and ordinary meaning” construction.⁶

- C. **“wherein the processor, when executing program instructions stored in the memory, is configured to: cause the apparatus to receive a Radio Resource Control (RRC) message . . . cause the apparatus to receive information indicating a random access preamble . . . cause the apparatus to transmit the random access preamble . . . cause the apparatus to receive a random access response . . . cause the apparatus to apply each TA value” (’954 Patent, Claim 6)**

| Pantech’s Construction | OnePlus’s Construction |
|---|--|
| Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) | Means plus function claim limitation under 35 U.S.C. § 112 ¶ 6 Function: cause the apparatus to receive . . . Structure: None (Indefinite) |

This dispute mirrors that of the previous “processor” term. *See* Section III.B. Claim 6

⁶ At the hearing, the parties advised the Court there was no dispute about the plain and ordinary meaning of “eNB.” Further, although the briefing suggested the underlying issue concerned whether “eNB” would read on a 3G base station, Dkt. No. 40 at 6, the parties explained the issue is whether “eNB” would read on a 5G base station and whether that requires a doctrine of equivalents analysis for infringement. That issue is not before the court and need not be decided to resolve the instant dispute. *See* Dkt. No. 50 at 8:8–21, 9:22–11:7, 13:5–15:5.

recites “a computer apparatus for a user equipment (UE)” with “a processor configured to” “cause the apparatus” to execute a number of steps. ’954 Patent at 27:62–28:29. OnePlus argues “processor . . . configured to” is a generic placeholder for a “general purpose computer,” and the specification does not disclose corresponding structural support for the claimed function because “a processor executing a relevant algorithm is never mentioned in the specification.” Dkt. No. 40 at 7–8. But according to Pantech, the term itself connotes sufficient structure. Dkt. No. 37 at 6–7.

For the same reasons set forth *supra*, Section III.B., the Court agrees with Pantech. Generally, the claims relate to the known process of uplink synchronization while using multiple component carriers (CCs). *See generally* ’954 Patent at 1:41–45 (noting “[c]urrent wireless communication system[s] need[] to satisfy a user demand through use of a plurality of CCs, unlike a conventional wireless communication system that supports a single component carrier (CC) or a single service band.”). The first, second, and fourth “steps” of the “processor” limitation relate to simply receiving information—“a Radio Resource Control (RRC) message through a primary component carrier (CC),” ’954 Patent at 28:1–3, “information indicating a random access preamble,” *id.* at 28:9–10, and a random access response that includes the TA value, *id.* at 28:17–18. The third “step” concerns the transmission of certain information. *Id.* at 28:11–16. Other than the inclusion of the “TA value” in the fourth step, these are standard wireless functions for synchronization known to a skilled artisan.

The last processor “step” appears directed to the aspect of the invention requiring the application of the “TA value” as part of the random access response to a secondary component carrier. *Id.* at 28:27–29. As the patent explains with reference to FIG. 2, this can be done by enabling the UE to transmit the UL radio frame a little earlier than the DL frame. *See id.* at 6:38–41. The claim thus couples the structure-connoting term “processor” with a description of its

operation—performing the steps known in the art plus varying the timing of transmitting the UL frame—in a manner that conveys sufficient structural meaning to a skilled artisan. *See Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004) (“[W]hen the structure-connoting term . . . is coupled with a description of the [term’s] operations, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art, and § 112 ¶ 6 presumptively will not apply.”). Accordingly, the Court concludes this term is *not* governed by 35 U.S.C. § 112 ¶ 6 and assigns it a “plain and ordinary meaning” construction.

V. THE DISPUTED TERM FROM U.S. PATENT 11,172,493

A. Background

The ’493 Patent has only 6 claims—3 of them are independent. Independent Claims 1 and 3 are each directed to a wireless transmit/receive unit (WTRU), while Claim 5 is directed to a Node B. Whereas the WTRU of Claims 1 and 3 obtain information from a Node B, the Node B of Claim 5 provides information to a WTRU. Thus, Claim 1 and 3 on one hand, and Claim 5 on the other, relate to different sides of the same type of transaction.

Each independent claim concerns information provided by a Node B to a WTRU. For example, Claim 1 recites the steps of:

obtain[ing] a radio resource control (RRC) message, the RRC message (i) indicating a bit position for a bitmap included in L1 control information associated with the WTRU group and (ii) indicating a number of control bits in the bitmap that are associated with the WTRU;

detect[ing] the L1 control information;

obtain[ing] one or more control bits from the bitmap in accordance with the bit position indicated by the RRC message;

when the RRC message indicates that a single control bit in the bitmap is associated with the WTRU, control an uplink

transmission of the WTRU using the obtained single control bit; and

when the RRC message indicates that multiple control bits in the bitmap are associated with the WTRU, control an uplink transmission of the WTRU using the obtained multiple control bits.

'493 Patent at 11:38–57 (emphasis added); *see also id.* at 12:20–25 (reciting the same italicized language in Claim 3). The parties dispute whether the last two limitations of Claims 1 and 3 are indefinite.

- B. “when the RRC message indicates that a single control bit in the bitmap is associated with the WTRU, control an uplink transmission of the WTRU using the obtained single control bit; and when the RRC message indicates that multiple control bits in the bitmap are associated with the WTRU, control an uplink transmission of the WTRU using the obtained multiple control bits” ('493 Patent, Claims 1, 3)**

| Pantech's Construction | OnePlus's Construction |
|----------------------------|------------------------|
| Plain and ordinary meaning | Indefinite |

OnePlus contends this phrase is indefinite because these limitations “require the performance of alternative scenarios in a single claim, contrary to the teachings of the specification.” Dkt. No. 40 at 9 (citing '493 Patent at 8:41–46). Focusing on the words “when,” OnePlus argues a skilled artisan would not understand how the RRC message can indicate both a single control bit and multiple control bits because they are clearly contrary situations.

OnePlus's argument misreads these claims. These are conditional statements, and only one of them applies to each RRC message. The specification describes first and second methods of signaling, *id.* at 8:41–47 (“In a first method, single bit signaling is replaced with multiple bit signaling in the bitmap per WTRU to achieve the randomness of resource allocation. In a second method, the number of signaling bits per WTRU can be variable.”), and the claims simply require the processors of Claims 1 and 3 to be capable of handling either method. Because the claims do

not require an RRC message to indicate both a single control bit and multiple control bits, the Court rejects OnePlus's indefiniteness challenge.

VI. DISPUTED TERMS FROM U.S. PATENT 9,548,839

A. Background

The '839 Patent teaches "a method for mapping a physical hybrid automatic repeat request indicator channel (PHICH)," '839 Patent at [57], which is the channel used to carry positive or negative acknowledgements (i.e., ACKs and NACKs). According to the '839 Patent, prior-art methods have difficulty avoiding collisions in PHICH groups between neighboring cells. *Id.* at 2:31–36.

To remedy that problem, the '839 Patent teaches a more efficient method of mapping a PHICH to OFDM symbols. *See id.* at [57] (noting because "efficient mapping is performed considering available resource elements varying with OFDM symbols, repetition of the PHICH does not generate interference between neighbor cell IDs and performance is improved"). The method is based on indexes of resource element groups (1) composing the OFDM symbols and (2) in which the PHICH is transmitted. *Id.*

Despite its length, Claim 1 recites a two-step process of "determining indexes" and then "mapping the PHICH" to the OFDM symbols:

1. A method for mapping a physical hybrid automatic repeat request indicator channel (PHICH) to at least one orthogonal frequency division multiplexing (OFDM) symbol,
 each OFDM symbol comprising a plurality of resource element groups,
 each resource element group being comprised of four resource elements, the method comprising:
 determining indexes of resource element groups in which the PHICH is transmitted; and

mapping the PHICH to at least one OFDM symbol according to the determined indexes

Id. at 7:24–35 (emphasis added). The claim then explains how to “determine” the indexes:

. . . wherein said indexes are determined according to ratio $n'_{l'_i}/n'_0$ or ratio $n'_{l'_i}/n'_1$ in OFDM symbol, having index l'_i ,

$n'_{l'_i}$ is the number of available resource element groups in the OFDM symbol, having index l'_i , n'_0 is the number of available resource element groups in OFDM symbol, having index 0, of a sub-frame, n'_1 is the number of available resource element groups in OFDM symbol, having index 1, of the sub-frame,

available resource element groups in the OFDM symbol, having index l'_i , are resource element groups which can be used for PHICH transmission in the OFDM symbol, having index l'_i .

Id. at 7:36–48.⁷

B. “ l'_i ” (’839 Patent, Claims 1–4, 9–12)

| Pantech’s Construction | OnePlus’s Construction |
|----------------------------|---|
| Plain and ordinary meaning | <p>Indefinite. Alternatively:</p> $l'_i = \begin{cases} 0 & \text{normal PHICH duration, all subframes} \\ i & \text{extended PHICH duration,} \\ & \text{non-MBSFN subframes} \\ (\lfloor m' / 2 \rfloor + i + 1) \bmod 2 & \text{extended PHICH duration,} \\ & \text{MBSFN subframes} \end{cases}$ |

The parties agree l'_i is “an index of an OFDM symbol in which the i -th repetition of a PHICH group is transmitted.” *See* Dkt. No. 37 at 10; Dkt. No. 40 at 10 (citing ’839 Patent at 5:12–13). OnePlus, however, asserts the specification does not provide any range or definition for l'_i other than Equation 1 found in column 5, lines 25–30. Dkt. No. 40 at 11. Without such a definition,

⁷ The parties proposed multiple agreed constructions for terms from the ’839 Patent that the Court adopts to clarify typographical errors within these claims. *See infra*, Section XI.

it says, a skilled artisan would not understand the scope of Claims 1 and 4. *Id.*

The Court disagrees. If l'_i is an index, the “range” of l'_i depends on whatever is being indexed—here, the resource element groups of OFDM symbols to which the PHICH is mapped. Thus, the range is limited by the number of resource element groups in which the PHICH is transmitted. While it might be possible for a formula to generate a nonsensical index for an OFDM symbol, OnePlus has not shown that to be the case.

Although Equation 1 is one way of determining the index, nothing in the specification suggests it is the *only* way. Nor has OnePlus shown indefiniteness by clear and convincing evidence. Accordingly, the Court rejects OnePlus’s indefiniteness challenge and construes this term as “an index of an OFDM symbol in which the *i*-th repetition of a PHICH group is transmitted.”

C. “a processor configured to determine indexes of resource element groups in which the PHICH is transmitted, and decode the PHICH mapped to at least one OFDM symbols according to the determined indexes” (’839 Patent, Claim 9).

| Pantech’s Construction | OnePlus’s Construction |
|---|--|
| Plain and ordinary meaning (not governed by 35 U.S.C. § 112(6)/(f)) (wherein “at least one OFDM symbols” is understood as “at least one OFDM symbol”) | Means plus function claim limitation under 35 U.S.C. § 112 ¶ 6 Function: determine indexes of resource element groups in which the PHICH is transmitted, and decode the PHICH mapped to at least one OFDM symbols according to the determined indexes Structure: None (Indefinite) |

The parties’ dispute tracks the previous “processor” terms. Pantech relies on the presumption against § 112 ¶ 6 in the absence of the word “means.” Dkt. No. 37 at 12. Pantech also stresses Claim 1 recites how the indexes are determined. Dkt. No. 37 at 12–13. OnePlus repeats

its prior position that “processor” is simply a generic placeholder for a general purpose computer. Dkt. No. 40 at 11–12.

“[S]tructure can be recited in various ways, including . . . a description of the claim limitation’s operation and ‘how the function is achieved in the context of the invention.’” *Dyfan, LLC*, 28 F.4th at 1366 (quoting *Apple, Inc.*, 757 F.3d at 1299); *see also Linear Tech.*, 379 F.3d at 1320 (“[W]hen the structure-connoting term . . . is coupled with a description of the [term’s] operations, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art, and § 112 ¶ 6 presumptively will not apply.”). Here, “processor” connotes structure to a skilled artisan, and the claim specifies how the indexes are determined. *See* ’839 Patent at 9:39–47. From there it is a matter of calculation by the processor. Accordingly, this is not a § 112 ¶ 6 term, and the Court will give it a “plain and ordinary meaning” construction.⁸

D. “at least one OFDM symbols . . . in OFDM symbol . . . in the OFDM symbol . . . in OFDM symbol . . . in OFDM symbol . . . in the OFDM symbol” (’839 Patent, Claims 1, 9).

| Pantech’s Construction | OnePlus’s Construction |
|---|------------------------|
| Plain and ordinary meaning (wherein “at least one OFDM symbols” is understood as “at least one OFDM symbol”) | Indefinite |

Characterizing the claim language “simply a mess,” OnePlus contends a skilled artisan would not understand whether any of the uses of “OFDM symbol” refers to the earlier recited “at least one OFDM symbols.” Dkt. No. 40 at 13–14. Pantech responds that divorcing the term from the surrounding claim language creates confusion, and suggests the disputed “term” represents several distinct (and differing) uses of “OFDM symbol.” Dkt. No. 37 at 15.

⁸ The Court additionally finds “at least one OFDM symbols” is understood as “at least one OFDM symbol.”

The Court agrees with Pantech. Claim 1 requires “mapping the PHICH to at least one OFDM symbol[] according to determined indexes.” ’839 Patent at 7:34–35. The claim then recites how to determine those indexes. *Id.* at 7:36–44. Each subsequent use of “OFDM symbol” in the claims then specifies which of the “at least one OFDM symbol, having” an index of 0, 1, or l'_{i} . Claim 9 includes similar language. *Id.* at 9:35–47. Although the comma after “symbol” is slightly confusing, a skilled artisan would nonetheless understand the subsequent uses of “OFDM symbol” refer to a specific symbol from the earlier recited “at least one OFDM symbols.” Accordingly, neither Claim 1 nor Claim 9 is indefinite on this basis.

VII. DISPUTED TERMS FROM U.S. PATENT 10,162,490

A. Background

The ’490 Patent relates to a sender’s ability to check the progress of a transmitting MMS message. ’490 Patent at 1:37–39. According to ’490 Patent, there are several problems with traditional methods of MMS transmission due to the inability to check the content of the MMS during transmission. *See id.* at 1:37–49. To address this problem, the ’490 Patent teaches “a method for displaying transmission status of a multimedia messaging service (MMS) message in which the content of a currently transmitted MMS message is displayed.” *Id.* at 1:56–59. This allows the user to “check the transmission status of the MMS message and the part of the message currently being transmitted.” *Id.* at 1:59–62. If that check shows the wrong file being transmitted, “[t]he user can cancel the transmission of the erroneous MMS message before completing the transmission[.]” *Id.* at [57].

Of the eight claims, Claims 1 and 5 are independent. Method Claim 1 recites:

1. A method for displaying transmitted contents in a mobile terminal, comprising:
 - selecting, in the mobile terminal, contents to be transmitted, the contents comprising at least one of image information and

video information;

receiving, from a user through an interface of the mobile terminal, a sending request for the selected contents in a message form;

transmitting, in response to the sending request, the selected contents sequentially in the message form; and

displaying the selected contents sequentially on a display of the mobile terminal and displaying a transmission progress of selected contents while transmitting the selected contents.

Id. at 7:40–43. Claim 5 recites a mobile terminal that implements the steps of Claim 1 using an input interface, a storage, a transmitter, a display and a controller. *See id.* at 8:12–30.

B. “displaying the selected contents sequentially on a display of the mobile terminal” (’490 Patent, Claim 1); display to display the selected contents sequentially in the message form” (’490 Patent, Claim 5)

| Pantech’s Construction | OnePlus’s Construction |
|----------------------------|---|
| Plain and ordinary meaning | <p>displaying, in sequence, portions of the selected contents on a display of the mobile terminal prior to subsequent portions of the selected contents</p> <p>a display to display, in sequence, portions of the selected contents prior to subsequent portions of the selected contents</p> |

This dispute centers on the word “sequentially.” OnePlus argues a “plain and ordinary meaning” construction would render “sequentially” superfluous, “as any selected contents displayed on a screen can be characterized as being displayed ‘sequentially.’” Dkt. No. 40 at 15. Pointing to Figures 5A–5D, OnePlus asserts the terminal displays the respective portions of the MMS message in the same sequence as the MMS message is transmitted “such that certain portions are displayed before others according to the sequence.” Dkt. No. 40 at 16. OnePlus also points to the prosecution history, contending the applicants distinguished the claims over prior art by arguing “displaying the selected contents sequentially” provides the advantage that “a contents sender can exactly see transmission status of the contents with his mobile terminal.” Dkt. No. 40 at 16 (citing

'490 Patent File History, Dkt. No. 40-1 at 6–7).

Pantech criticizes OnePlus for attempting to limit the claims to the embodiment of Figure 5. It also claims the prosecution history does not support OnePlus's position, because nowhere did the inventors limit the ordinary meaning of "sequentially." Dkt. No. 42 at 6.

The hearing was particularly helpful in crystalizing the parties' dispute. In particular, Pantech clarified it does *not* contend displaying the transmitted contents "all at once" is "sequential" within the meaning of the claims. Dkt. No. 50 at 24–30. Further, Pantech clarified that, in its view, the dispute relates to whether the claims require showing the contents "growing" as they are transmitted. On that point, Pantech noted the language in OnePlus's construction requiring "portions of the selected contents [be displayed] prior to subsequent portions of the selected contents" improperly required the contents to "grow." OnePlus pointed to Pantech's infringement contentions, which it characterized as alleging the claims are infringed because of a progress bar. In OnePlus's view, "this is not a progress bar patent."

To start, the Court disagrees the prosecution history has any limiting effect on the present claim construction dispute. The Office cited U.S. Published Application 2007/0066310 (Haar) as teaching the "displaying" limitation. Generally, Haar "aims at providing non-language [NL] message in a mobile telecommunications network using mobile communication terminals in a highly automated manner." Haar ¶ [0004]

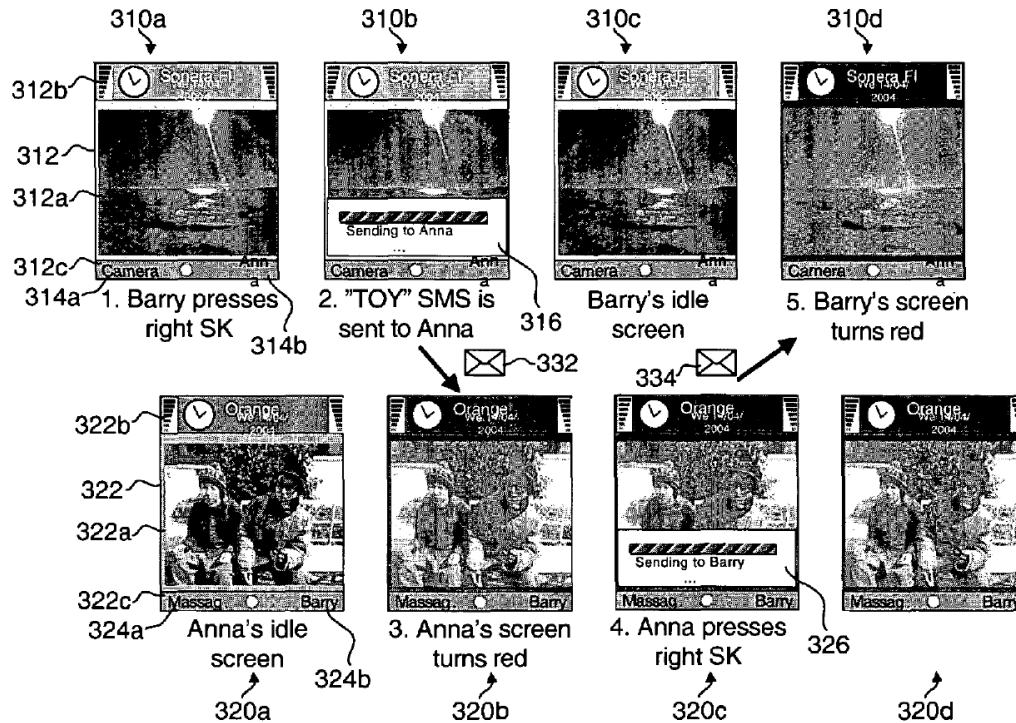


Fig. 3 of U.S. Published Application 2007/0066310 (Haar)

Haar's FIG. 3 (above) shows an example of such "a highly automated manner" between two terminals. Each terminal has a soft key (314b, 324b) pre-defined to send a particular non-language (NL) message to the other terminal. Each soft key is defined to send a "Thinking of You" message to the other terminal which, upon receipt of the message, changes the background to red. Thus, "without any manual intervention from [the receiver], [the sender's] desire to express his Thinking Of You emotion to [the receiver] will be perceived by her with only a simple glance at her display." *Id.* ¶ [0069].

FIG. 3 also shows progress bars 316, 318, which inform the senders of the state of the transmission and the statement "Sending to Anna . . ." or "Sending to Barry . . .". In addition, however, Haar discloses

a short explanatory text label for each associated NL message [may be] shown in a progress bar on the sender's display as a confirmation to him or her that an NL

message of the type explained by the label is being sent to the intended receiver. For instance, instead of just “Sending to Anna . . .”, the progress bar 316 of FIG. 3 could read “Sending TOY to Anna . . .”

Id. ¶ [0079].

The Office asserted this “short explanatory text label” met the “displaying” limitation of Claim 1. In response, the applicants argued:

Haar does not teach displaying the selected contents sequentially on a display of the mobile terminal. Haar merely discloses displaying the progress bar 316 and 326 on the display of the first mobile terminal, which transmits a message, and color changing of the display of the second mobile terminal, which receives the message. However, claim 1 requires displaying the selected contents sequentially on a display of the mobile terminal and displaying a transmission progress of selected contents while transmitting the selected contents. Accordingly, a contents sender can exactly see transmission status of the contents with his mobile terminal.

Amendments & Reply, Dkt. No. 40-1 at 6 (underlining in original). Based on this prosecution history, OnePlus argues “the word ‘sequentially’ was the basis for allowance of the ’490 patent and must be given a meaningful construction.” Dkt. No. 40 at 17.

The Court disagrees. Although the applicant’s emphasized “sequentially,” the argument also related to the language “displaying a transmission progress.” In fact, at the end of the applicants’ argument, they cited the entirety of the last limitation, emphasizing there were two “parts” to the limitation: “[C]laim 1 requires displaying the selected contents sequentially on a display of the mobile terminal and displaying a transmission progress of selected contents while transmitting the selected contents.” Amendments & Reply, Dkt. No. 40-1 at 6 (underlining in original). This could have been a concession the progress bar met the “displaying a transmission progress” of the limitation combined with an argument no contents were displayed sequentially or otherwise. Given that, the applicants’ argument was not so clearly dependent on an interpretation of “sequentially” to justify a special meaning based on the prosecution history.

“Sequentially” has a widely accepted meaning to a lay juror. *Phillips*, 415 F.3d at 1314 (noting “the ordinary meaning of claim language . . . may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words”). Given the general agreement that displaying all the contents at the same time does not meet the “displaying . . . sequentially” limitation,⁹ the Court gives this term a “plain and ordinary meaning” construction.

C. “message form” (’490 Patent, Claims 1, 5)

| Pantech’s Construction | OnePlus’s Construction |
|-------------------------------|--|
| Plain and ordinary meaning | form compatible with a messaging service |

According to Pantech, “‘message form’ has a plain meaning, and is used consistently with that meaning without lexicography or disclaimer.” Dkt. No. 37 at 17. Pantech, complains OnePlus’s construction attempts to improperly limit the claims to a specific type of message format. Dkt. No. 42 at 6. Arguing the specification clearly establishes an association to a message service (*e.g.*, MMS messages or SMS messages), OnePlus stresses that in each of the 100+ times “message” or “messaging” appears in the specification, the word is used in connection with a multimedia message service (or MMS) message. Dkt. No. 40 at 17.

The Court agrees with OnePlus. Although Pantech asserts the term has a plain meaning, it provides no evidence supporting that assertion. *See* Dkt. No. 37 at 17–18. Notably, “message form” is not used in the specification—only in the claims. The specification does, however, extensively refer to an MMS message throughout, most critically (for purposes of resolving this dispute) in the

⁹ This agreement (or concession) that the plain and ordinary meaning of sequentially seems to suggest that the scenario wherein the *entire* message content, including *all* transmitted file(s), appears all at once, would fall outside the scope of the claim, even if the transmission also included a progress bar. However, that non-infringement dispute is not developed or properly before the court currently.

Title, Abstract, and Summary. *See* '490 Patent at [54] (“Method for Displaying Transmission Status of MMS . . . and Telecommunication Terminal Using the Method”); *id.* at [57] (“A method for displaying transmission status of a multimedia message service (MMS) message and telecommunication terminal using the method”); *id.* at 1:56– 59 (“This invention provides a method for displaying transmission status of a [MMS] message in which the content of a currently transmitted MMS message is displayed”). The specification even characterizes the invention as a solution to prior-art problems with transmitting MMS messages. *Id.* at 1:37–48 (noting that, “[w]hile transmitting an MMS message,” a user cannot check the content of the transmitted MMS message, and “the user cannot check the part of the MMS message that is being currently transmitted”).

During the hearing, Pantech analogized to the facts of *Unwired Planet, LLC v. Apple Inc.*, 829 F.3d 1353 (Fed. Cir. 2016), but that case is distinguishable. In *Unwired Planet*, the patent owner challenged the district court’s construction of “voice input” as “speech provided over a voice channel.” In reaching that construction, the court relied on the asserted patent’s summary, which stated

[t]he present invention relates to a wireless communication system that utilizes a remote speech recognition server system to translate voice input received from mobile devices into a symbolic data file (e.g. alpha-numeric or control characters) that can be processed by the mobile devices. The translation process begins by establishing a voice communication channel between a mobile device and the speech recognition server.

Unwired Planet, 829 F.3d at 1356–57 (noting the district court’s holding that the summary’s second sentence limits the scope of the claims). The appellate court reversed, noting:

[t]he claims require a voice *input*, not a voice *channel*. By its plain language, the term “voice input” does not dictate the manner in which voice is to be transmitted from a mobile device to a server It is undisputed that a voice input signal could be transmitted over either a voice channel or a data channel.

Id. at 1358. Thus, said the court, the district court’s construction was only proper if there was disclaimer. *Id.*

But the appellate court found no such disclaimer. Though recognizing prior holdings that statements like “the present invention includes . . .,” “the present invention is . . .,” and “all embodiments of the present invention are . . .” can be clear and unmistakable disavowal or disclaimer, the court disagreed the patent’s summary amounted to disclaimer, noting “this first sentence does not even mention a voice communication channel.” *Id.*

At the hearing, Pantech suggested *Unwired Planet* turned on the patent’s use of “relates” in the summary’s first sentence. The use of “relates,” however, had no role in the court’s reasoning. Instead, the court stressed (1) the first sentence of the summary “[did] not even mention a voice communication channel,” and (2) the specification did not “clearly and unmistakably requir[e] that voice signals be transmitted exclusively over voice channels,” *Id.* (concluding “the sentences [from the summary] describing the translation process [do not] rise to the level of ‘manifest exclusion or restriction’ of the clam scope”).

To be clear, the Court agrees with Pantech that the sheer number of references to MMS messages in the specification is not dispositive of the issue. Regardless, a “person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent . . .” *Phillips*, 415 F.3d at 1313. Considering the entire patent here, including the Title, Abstract, and Summary, the Court concludes a skilled artisan would understand “message form” refers to “MMS message.”

VIII. DISPUTED TERMS FROM U.S. PATENT 8,587,710

A. Background

The ’710 Patent relates to “controlling a picture displayed on a display of a mobile

terminal.” ’710 Patent at 1:16–20. After recognizing prior-art control techniques for resizing a displayed picture using key buttons or a touch screen, the ’710 Patent notes the need for a technique without direct physical manipulations by a user. *Id.* at 1:22–29. To that end, the patent teaches a “picture control apparatus” and related method that use image recognition to control a displayed picture according to a user’s action. *Id.* at 1:34–41.

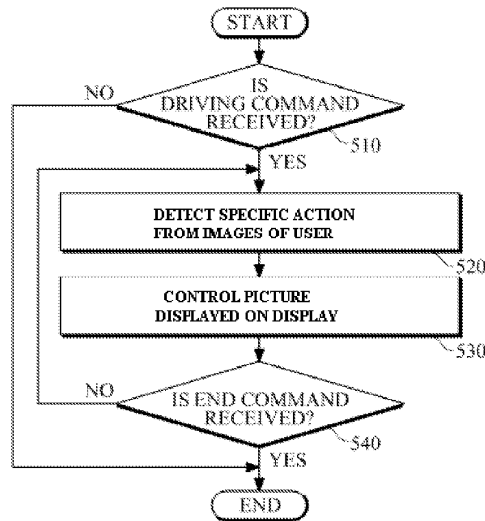


Figure 2 of the ’710 Patent

Figure 2 of the ’710 Patent (above) shows an embodiment of the method, which first determines whether a driving command is received, such as by touch on a specific region of a touch screen. If so, the method drives a camera to capture images of the user. The picture control apparatus then looks for a specific action from the captured images, such as the user’s movement toward or away from the camera, the user’s movement to the left or right, or the movements, rotations, or inclinations of the user’s face, or the wink of a user’s eye. If the apparatus detects a specific action, it controls a picture displayed on a mobile terminal, such as by enlarging or reducing its size. *See generally* ’710 Patent at 4:4–61.

The ’710 Patent has two independent claims. Claim 1 is directed to a “picture control

apparatus” comprising:

- a display to display a picture and to receive a touch corresponding to a location on the display;
- a driver to drive a camera to capture images for action detection;
- an action detector to detect a specific action from the images captured by the camera; and
- a picture controller configured to control the picture displayed on the display in association with the location on the display if the specific action is detected by the action detector.

Id. at 6:38–48. Claim 19 recites a “picture control method” comprising:

- displaying a picture on a display and receiving a touch corresponding to a location on the display;
- driving a camera to capture images for action detection;
- detecting an action from the images captured by the camera; and
- controlling the picture displayed on the display in association with the location on the display if the detected action is a specific action.

Id. at 8:6–14.

B. “picture” (’710 Patent, Claims 1, 2, 6, 19); “images” (’710 Patent, Claims 1, 12, 13, 15, 19)

| Term | Pantech’s Construction | OnePlus’s Construction |
|-----------|----------------------------|---|
| “picture” | Plain and ordinary meaning | a displayable file such as a JPG, PHOTOSHOP, or HTML file |
| “image” | Plain and ordinary meaning | camera data independent of the picture |

This dispute concerns the relationship between these two terms. According to OnePlus, these terms would ordinarily be synonymous, but the specification uses them in different ways. Dkt. No. 40 at 18. The “picture,” says OnePlus, is always displayed and controlled, whereas the “image” is always something other than the picture. *Id.* at 19. OnePlus argues the specification provides a definition for picture by defining three specific examples of displayable file types. *Id.*

(citing '710 Patent at 4:66–67, 5:2–3, 5:6–8). Pantech argues both terms have plain meanings and disputes any lexicography or disclaimer. Dkt. No. 37 at 18–19. It agrees these terms are not used in the same way and suggests the surrounding claim language makes that clear.

Pantech has the better position. To start, the Court does not find lexicography, and OnePlus cites no authority for the position that examples in the specification satisfy the necessary threshold for such a finding. Rather, the '710 Patent undercuts OnePlus's position elsewhere, such as by disclosing a "picture" may be resized either *on the screen or as a file*. Thus, construing "picture" as only a displayable file is too limiting given the intrinsic evidence to the contrary. *Compare* '710 Patent at 6:49–50 (reciting, in Claim 2, "wherein the picture controller enlarges or reduces the size of the picture"), *with id.* at 6:62–64 (reciting, in Claim 6, "wherein the picture controller enlarges or reduces a size of the picture stored in memory").

Here, both independent claims limit the scope of "picture" and "image" with surrounding language. Specifically, both Claim 1 and Claim 19 require "pictures" to be displayed and "images" to be captured by a camera. In other words, the picture is the visual "output" of the method or device and the image is the "input." Figure 1 reinforces this notion with its disclosure of the camera and display logically separated by an "action detector" and a "picture controller." Given this surrounding claim language for these terms, the Court sees no basis or need for limiting "picture" to a file or "image" to something independent of the "picture."¹⁰ Accordingly, the Court will give these terms "plain and ordinary meaning" constructions.

¹⁰ At the hearing, OnePlus suggested Pantech's infringement contentions might be based on, for example, light or other conditions, rather than a subject's motion or expression. This, in turn, suggests the underlying issue might be what constitutes an "action" rather than a "picture" or "image," but that issue is not before the Court.

C. “action detector to detect a specific action from the images captured by the camera” (’710 Patent, Claim 1)

| Pantech’s Construction | OnePlus’s Construction |
|---|--|
| <p>Governed by 35 U.S.C. § 112 ¶ 6</p> <p>Function: detecting a specific action from the images captured by the camera</p> <p>Structure: processor configured to detect actions of a user, object, animal, subject of the image, or the like in images captured by a camera</p> | <p>Means plus function claim limitation under 35 U.S.C. § 112 ¶ 6</p> <p>Function: to detect variations in feature points included in images showing variations in motion or expression and captured by the camera</p> <p>Structure: None (Indefinite)</p> |

The parties agree this is a means-plus-function term but disagree as to the claimed function and whether there is corresponding structure disclosed in the specification. For the claimed function, Pantech points to the claim language, which OnePlus criticizes as merely a statement of an outcome. Dkt. No. 40 at 20. As to the corresponding structure, Pantech claims a skilled artisan would understand the claimed function would be implemented by a processor and appropriate imaging processor. Dkt. No. 37 at 20. But according to OnePlus, “[t]he specification is entirely silent as to structure of the ‘action detector.’” Dkt. No. 40 at 20.

Regarding the claimed function, the Court agrees with Pantech. It’s hard to argue the claimed function is anything but the function recited in the claims. OnePlus’s position that this is a “statement of outcome” is true for all “functions” to some extent—even the function proposed by OnePlus. Because OnePlus presents no good reasoning for why the claim’s language does not suffice, the Court finds the claimed function to be “detecting a specific action from the images captured by the camera” as recited in the claims.

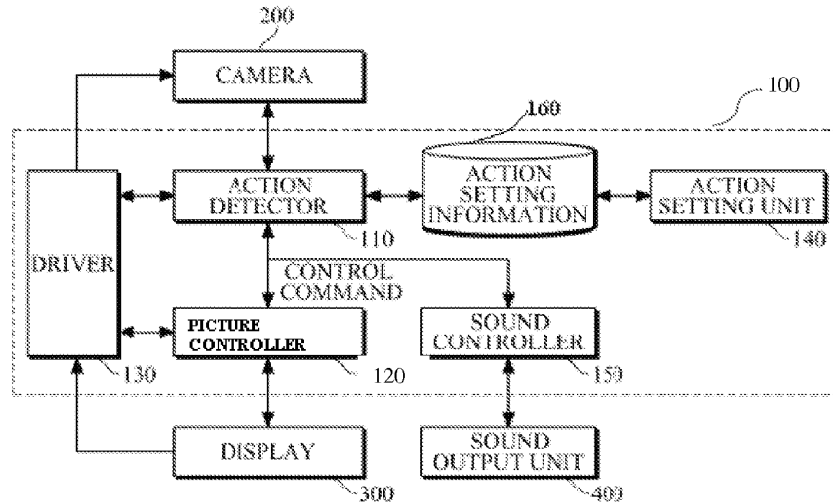


Figure 1 of the '710 Patent

As for the corresponding-structure inquiry, the Court concludes the specification discloses sufficiently definite structure and links that structure to the claimed function. First, the specification implicitly discloses a processor as implementing the “action detector.” The invention relates to controlling pictures displayed on a mobile terminal, which a skilled artisan would understand requires the use of a processor. Moreover, Figure 1 (above) shows the mobile terminal includes action setting information **160** in a store accessible by the action detector **110**. The action detector **110** is also connected to the driver **130** and picture controller **120** to receive control commands. Finally, the specification explains specific actions used to control pictures are stored in a storage “such as read-only memory, random access memory, flash memory, removable memory, or a register included *in a processor*.” ’710 Patent at 3:52–54. A skilled artisan would understand this intrinsic evidence as disclosing the action detector being implemented by a general purpose processor.

Generally, “a means-plus-function claim element for which the only disclosed structure is a general purpose computer is invalid if the specification fails to disclose an algorithm for performing the claimed function.” *Net MoneyIN, Inc. v. VeriSign, Inc.* 545 F.3d 1359, 1367 (Fed.

Cir. 2008). Here, the specification also discloses the action detector **110** as:

receiv[ing] images of a user captured by a camera **200** and detect[ing] a specific action from the images of the user. The specific action may be detected *by analyzing variations of feature points included in the images of the user to thus recognize variations in motion or expression.*

'710 Patent at 2:40–44 (emphasis added); *see also id.* at 4:18–56 (providing examples of detected actions, such as the user's movement toward or away from the camera, the user's movement left or right, winking, lip shape, inclination or rotation of the user's face, and facial expressions). While analyzing variations in feature points does not by itself accomplish the claimed function of “detecting a specific action,” the specification further explains “[t]he stored action setting information **160** is referred to by the action detector **110** in order to detect a specific action.” *Id.* at 3:54–55. This comports with Figure 1, which shows the action detector **100** connected to the camera **200** and to the action setting information **160**.

Based on this intrinsic evidence, the Court finds the disclosure of a general purpose processor and algorithm linked to the claimed function. Specifically, the Court holds the corresponding structure is “a processor programmed to (1) recognize variations in the positions of feature points over time; and (2) compare the variations to stored action setting information to detect (or not detect) a specific action.”¹¹

¹¹ At the hearing, Pantech stated it was agreeable to the Court's construction, while OnePlus maintained its view that the passages in columns 2, 3, and 4, as well as Figure 1, do not provide adequate support to make the claim definite. Dkt. No. 50 at 50:3–51:7.

D. “picture controller configured to control the picture displayed on the display in association with the location on the display if the specific action is detected by the action detector” (’710 Patent, Claim 1).

| Pantech’s Construction | OnePlus’s Construction |
|--|--|
| <p>Governed by 35 U.S.C. § 112 ¶ 6</p> <p>Function: controlling the picture displaying on the display in association with the location on the display</p> <p>Structure: processor configured to vary coordinates, colors, and brightness of individual pixels belonging to the picture to change color effects, white balances and the like on the display</p> | <p>Means plus function claim limitation under 35 U.S.C. § 112 ¶ 6</p> <p>Function: configured to control the picture displayed on the display to center the picture at the location on the display if the specific action is detected by the action detector</p> <p>Structure: None (Indefinite)</p> |

This dispute, and the parties’ arguments, track those made with respect to “action detector.”

See Section VIII.C; Dkt. No.50 at 51:9–16; Dkt. No. 37 at 19–23; Dkt. No. 40 at 19–21.

Addressing first the § 112 ¶ 6 function, Pantech essentially proposes the claim language. OnePlus uses language from the Detailed Description and contends it is the only language in the patent that describes performance of an actual function. Dkt. No. 40 at 20 (citing ’710 Patent at 3:33–32). OnePlus does not, however, explain why the function recited in the claims is not an “actual function.” Accordingly, the Court adopts the language from the claim as the claimed function: “controlling the picture displayed on the display in association with the location on the display if the specific action is detected by the action detector.”

Turning to the corresponding-structure inquiry, as with “action detector,” the Court finds sufficient basis to conclude the specification at least implicitly discloses a processor. For one, the invention relates to a mobile terminal, and FIG. 1 shows the picture controller **120** in two-way communication with the action detector **110**, the driver **120**, and the display **300**. Further, as the patent explains,

[i]f the action detector **110** detects a specific action, the picture controller **120** controls a picture displayed on a display **300**. The picture controller **120** may control a picture displayed on the display **300** *by enlarging or reducing a size of the picture or by varying coordinates, colors, and brightness of individual pixels belonging to the picture to change color effects, white balances, etc.*

'710 Patent at 2:58–64 (emphasis added). Thus, the picture controller does the “enlarging,” “reducing,” or “varying,” and a skilled artisan would understand that to require a processor.

This passage also shows the “algorithm” executed by the processor, simple though it may be. First, because the “action detector” detects a “specific action,” and because the claimed function includes the conditional statement “if the specific action is detected by the action detector,” a skilled artisan would understand this implicitly discloses communication of the detection of a specific action to the “picture controller.” *See Atmel Corp. v. Info. Storage Devices*, 198 F.3d 1374, 1380 (Fed. Cir. 1999) (“disclosure of structure corresponding to a means-plus-function limitation may be implicit in the written description if it would have been clear to those skilled in the art what structure must perform the function”). Further, a skilled artisan would understand the specification implicitly discloses that the “picture controller” includes some association of the possible detected specific actions with how the picture should be controlled for each of those actions, much like the “action detector” compares variations in the positions of feature points over time to stored action setting information. *See* Section VIII.C. *supra*.¹² The picture controller must look up the relationship between the detected action and the desired control, and then take the associated action. For example, the specification discloses the example of:

At this time, the picture controller **120** may enlarge or reduce the size of the picture and center the picture at the specific location where the users touch has occurred on the touch screen **300**. That is, if the user touches a specific location on the touch screen **300**, the driver **130** drives a picture control function, and if the action

¹² Similarly, the '052 Patent teaches looking up a gesture in an event table to determine what command to execute. *See* Section IX.A. *infra*.

detector **110** detects a specific action from the images of the user captured by the camera **200**, the picture controller **120** enlarges or reduces a picture centering on the specific location where the user's touch has occurred.

'710 Patent at 3:36–42. This discloses a predetermined relationship between the touch of a specific location on the screen, the detection of a specific action and the picture controller's resizing of a picture and centering on the specific location of the touch.

Notably, OnePlus provides no reasoned analysis to the contrary. Rather it concluded the specification is entirely silent as to the structure of the picture controller, without supporting that conclusion with any explanation of how a skilled artisan would understand the specification. (As noted above, OnePlus fails to propose a "level of skill in the art" for analysis.) At the least, OnePlus has not shown the specification fails to disclose sufficient corresponding structure by clear and convincing evidence. *See TecSec, Inc.*, 731 F.3d at 1349 (Fed. Cir. 2013) ("The party alleging that the specification fails to disclose sufficient corresponding structure must make that showing by clear and convincing evidence." (quoting *Budde*, 250 F.3d at 1380–81)).

Regarding the notion of "implicit disclosure" and Pantech's reliance on *Atmel*, OnePlus points to what it calls "criticism" and "negative treatment" of *Atmel* by the Federal Circuit in *Twin Peaks Software Inc. v. IBM Corp.*, 690 Fed. App'x 656, 661 (Fed. Cir. 2017). *See* Dkt. No. 40 at 14, 21, 26. In *Twin Peaks*, the appellant challenged the district court's conclusion a "means for mounting components of. . . two file systems" limitation was indefinite because,

although the specification discusses 'the *outcome* after a system administrator implements the MFS mounting protocol,' it 'only recites functional, rather than structural language' and fails to 'disclose *how* to perform the command' so that the two file systems mounted on a single mounting point remain available and unhidden.

Id. at 658. On appeal, *Twin Peaks*, relying partly on *Atmel*, argued a skilled artisan reading the specification would understand what structure corresponds to the "means for mounting" limitation

and could implement it because “some structure is disclosed.” *Id.* at 661.

In response to that argument, the court clarified there are two distinct inquiries: (1) what structure is disclosed, either expressly or implicitly, in the specification, and (2) what expressly or implicitly disclosed structure, if any, corresponds to the “means” term recited in the claims. *See id.* (confirming the “interpretation of what is disclosed must be made in light of the knowledge of one skilled in the art, but ‘the understanding of one skilled in the art in no way relieves the patentee of adequately disclosing sufficient structure in the specification’” (quoting *Atmel*, 198 F.3d at 1382)). This is not quite the “criticism” or “negative treatment” of *Atmel* that OnePlus suggests, as it appears the court simply rejected the appellant’s argument a skilled artisan “would understand what structure corresponds to the ‘means for mounting’ limitation and could implement it because ‘some structure is disclosed.’” In making that rejection, the court simply noted the implicit disclosure of “some structure” is not necessarily the disclosure of “some structure corresponding to the means.” *Id.*

Here, the Court agrees the specification does not explicitly disclose, for example, the receipt by the picture controller from the action detector of the detected specific action, nor the user- or system-defined association between the detected action and the control of the picture. Nonetheless, a skilled artisan would understand those steps as implicitly disclosed. *See Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385 (Fed. Cir. 2011) (“[T]he amount of detail that must be included in the specification depends on the subject matter that is described and its role in the invention as a whole, in view of the existing knowledge in the field of the invention.”).

The Court concludes the specification discloses the following corresponding structure for the “picture controller”: “a processor programmed to (1) receive from the action detector an indication of a detected specific action; (2) compare the detected specific action to stored

information associating the specific action with a control of the displayed picture in association with the picture's location on the display; and (3) control the displayed picture in association with the picture's location on the display based on the results of the comparison.”

IX. DISPUTED TERMS FROM U.S. PATENT 8,893,052

A. Background

The '052 Patent concerns the increasing frequency with which users run numerous applications on a mobile terminal, with one in the foreground and others in the background. *See* '052 Patent at 1:45–51. “Conventional” mobile terminals may directly perform a control with respect to the foreground application, but not a background application. *Id.* at 1:60–63. For example, to control a media player running in the background, the player must be displayed on the screen as the foreground application so the user can directly control it. *Id.* at 1:63–2:2.

In contrast, the '052 Patent teaches a system and method for using a gesture to perform a command event by a *background* application. *See id.* at 1:16–20. For example, FIG. 8 shows a terminal running a music player as a background application in two different states. When the terminal identifies the gestures 810, 840, it looks up that gesture in an event table to determine what command to execute. In FIG. 8, both gestures 810, 840 are the same but the appropriate command depends on the state of the music player. FIG. 9 shows two gestures 910, 940 generally in the shape of right and left arrows associated with the commands of “select next music” and “select previous music.” FIG. 10 shows gestures 1010, 1040 generally in the shape of up and down arrows tied to commands for controlling volume.

Claim 10 is representative of the claims at issue:

10. A system to control a mobile terminal application using a gesture, comprising:
 - an application executing unit to execute a first application, and
 - to execute a second application while executing the first

application as a background application, the first application being executed in a background without displaying a control interface of the first application;

a gesture identifying unit to identify a target application control gesture corresponding to a contact signal, the contact signal being generated on a display screen in which a control interface of a target application is not displayed;

a command event verifying unit to verify a command event corresponding to the target application control gesture; and

a processor comprising an application controlling unit to forward the command event to the determined target application, and to control the target application to perform the command event in a background application state,

wherein the application executing unit further determines the first application as the target application based on an application selection gesture if multiple background applications controllable by the target application control gesture are being executed, and determines the first application as the target application without the application selection gesture if the first application is the only background application being executed.

'052 Patent at 14:59–15:19.

B. “application selection gesture” ('052 Patent, Claims 1, 10); “target application control gesture” ('052 Patent, Claims 1, 10)

| Term | Pantech's Construction | OnePlus's Construction |
|--------------------------------------|----------------------------|---|
| “gesture” | Plain and ordinary meaning | “a sort of image identified when a contact signal is generated on a display screen of a mobile terminal, and may be an image coinciding with an outline, shape, or path followed by a pointer generating the contact signal on the display screen.” |
| “application selection gesture” | Plain and ordinary meaning | “a gesture for specifically selecting the first application” |
| “target application control gesture” | Plain and ordinary meaning | “a gesture for specifically identifying a command event for a target application” |

The parties' briefing presents several disputes relating to these terms, although some of them were resolved at the hearing. To start, OnePlus asserts the specification defines "gesture." Dkt. No. 40 at 22. Specifically, OnePlus points to the patent's disclosure that

[i]n general, 'gesture' may designate an action or movement that a user may make with a part of the user's body to express emotion or information as defined in dictionaries. However, in the present specification, 'gesture' refers to a sort of image identified when a contact signal is generated on a display screen of a mobile terminal, and may be an image coinciding with an outline, shape, or path followed by a pointer generating the contact signal on the display screen.

'052 Patent at 4:1–8. Pantech replies "there is no lexicography present, much less clear lexicography." At the hearing, however, Pantech conceded to this definition with the understanding that the examples following the term "may be" are only exemplary and not limiting. Dkt. No. 50 at 51:18–52:8.

This is typical lexicography. As the patent notes, the ordinary meaning of "gesture" outside the context of this patent could refer to a user's action or movement. The patent, however, clearly and explicitly explains "gesture" means something different and more specific—an image from a contact signal generated on a display screen. '052 Patent at 4:1–8. This is consistent with how the patent uses the term in the specification. *See, e.g., id.* at [57] ("A system and a method for controlling a mobile terminal application using a gesture may identify a gesture corresponding to a contact signal input to a display screen"); *id.* at 2:11–13 ("controlling a mobile terminal application using a gesture, where the gesture is applied without key input as a contact on a display screen"); *id.* at 2:21–22 ("a gesture in accordance with a contact signal generated in a display screen"); *id.* at 2:37–38 ("identifying a gesture corresponding to a contact signal"); *id.* at 8:5–10 ("[W]hen a contact signal is generated on the display screen 170 of the mobile terminal . . . , the gesture identifying unit 120 may identify, in the event table 160, a gesture 810 corresponding to the contact signal.").

The Court therefore construes “gesture” as urged by OnePlus: “a sort of image identified when a contact signal is generated on a display screen of a mobile terminal, and may be an image coinciding with an outline, shape, or path followed by a pointer generating the contact signal on the display screen.” “Gesture,” however, is *not* limited to “an image coinciding with an outline, shape, or path”—these are non-limiting examples of a “gesture” as indicated by definition’s use of the phrase “may be.”

The parties also dispute whether either “application selection gesture” and “target application control gesture” “cover a basic selection of a user interface button.” Dkt. No. 40 at 24. OnePlus points to the prosecution history in which the applicants emphasized “the selection of user interface buttons . . . cannot be characterized as the [gestures] recited in Claim 1.” But according to Pantech, the prosecution history supports its position by noting the cited reference’s absence of “identifying a target application control gesture corresponding to a control signal.” Dkt. No. 42 at 8–9.

The cited reference, U.S. Published Application 2006/0123353 (Matthews), “provides a system or method for displaying rich presentation taskbar buttons for a corresponding application.” ’353 Application at [57]. As Matthews discloses, “[a] ‘rich presentation taskbar button’ . . . contains a custom user interface containing information beyond the simple name of an application and/or an icon identifying the application.” *Id.* ¶ [0033]. For example, “the rich presentation taskbar button may contain control display elements associated with a corresponding application to provide a user with the ability to control the operation or functionality of the corresponding application.” *Id.*

During prosecution, the applicants asserted “Matthews does not disclose a gesture-based control.” Reply Under 37 C.F.R. § 1.111, Dkt. No. 40-4 at 10. More specifically, the applicants

argued:

According to Matthews' scheme, . . . to select the user interface buttons of the rich presentation taskbar button 406, at least a portion of the first application, e.g., the minimized rich presentation taskbar button 406, should be displayed on a display screen. Thus, Matthews also does not disclose at least "identifying a target application control gesture corresponding to a contact signal, the contact signal being generated on a display screen in which a control interface of the target application is not displayed" as recited in Claim 1 as amended, and such selection of the user interface buttons in Matthews cannot be characterized as 'application selection gesture' or 'target application control gesture' recited in claim 1.

Id.

This prosecution history is not clear enough to exclude the selection of *all* user interface buttons from the scope of "gesture." For one, the applicants' prosecution-history arguments were directed to not just the "gesture" terms but to the entire limitation, including the phrases "*without displaying* a control interface of the first application" and "the contact signal being generated on a display screen in which a control interface of the target application *is not displayed*." '052 Patent at 13:36–60. (emphasis added); *see also, id.* 14:59–15:19. Thus, the surrounding claim language provides context as to whether control interface buttons are displayed for the different gesture types. Moreover, the prosecution history was clear that "such selection of the user interface buttons *in Matthews* cannot be characterized as 'application selection gesture' or 'target application control gesture' recited in Claim 1." *Id.* at 11 (emphasis added). Because the applicants' arguments concern the entire limitation rather than just "target application control gesture" and the specific selection buttons of Matthews, it is not sufficient to hold the applicants disavowed the selection of *all* user interface buttons under any possible configuration whatsoever.

In sum, the Court finds lexicography for the term "gesture" as used in "target application control gesture" and "application selection gesture," does not find disavowal, and holds the two

gestures are distinct and different.¹³ Past that, these terms simply have their plain and ordinary meanings.

C. “gesture identifying unit” (’052 Patent, Claims 10, 18)

| Pantech’s Construction | OnePlus’s Construction |
|---|--|
| <p>Governed by 35 U.S.C. § 112 ¶ 6</p> <p>Function: identifying a target application control gesture</p> <p>Structure: a processor with software configured to identify a gesture in accordance with a contact signal input to the display screen</p> | <p>Means plus function claim limitation under 35 U.S.C. § 112 ¶ 6</p> <p>Function: identify a target application control gesture corresponding to a contact signal, the contact signal being generated on a display screen in which a control interface of a target application is not displayed</p> <p>Structure: None (Indefinite)</p> |

Although the parties agree this is a means-plus-function term, they disagree as to the claimed function and whether there is disclosed corresponding structure. Regarding the claimed function, Pantech accuses OnePlus of “improperly import[ing] attributes of the claimed ‘target application control gesture’ and ‘contact signal.’” Dkt. No. 37 at 24. OnePlus counters its proposed “function” comes directly from Claims 10 and 18. Dkt. No. 40 at 25.

Pantech’s proposed “function” is too broad because it omits language that limits the nature of “target application control gesture” necessary to determine whether sufficient corresponding structure is disclosed. The gesture cannot be any gesture, but must one that “corresponds to a contact signal.” *See supra*, Section IX.B. In fact, the contact signal must be one generated on a display screen, and the display screen must be one on which “a control interface of a target application is not displayed.” *See* ’052 Patent at 14:66–15:3 (Claim 10); *id.* at 16:25–29

¹³ OnePlus also argues the two gestures must correspond to different distinct gestures. Dkt. No. 40 at 24 (“these two gestures must correspond to different and distinct touches”). Pantech indicated during the hearing it does not dispute OnePlus’s position. Dkt. No. 50 at 65:16–19.

(Claim 18). The Court adopts OnePlus’s identification of the claimed function: “identifying a target application control gesture corresponding to a contact signal, the contact signal being generated on a display screen in which a control interface of a target application is not displayed.”

As with the other means-plus-function terms, OnePlus claims the specification “is entirely silent as to structure of the . . . unit and an algorithm for performing the [identified] function.” Dkt. No. 40 at 25. And, as with the other means-plus-function terms, a skilled artisan would understand the specification implicitly discloses a processor. The invention “relates to a system and method for controlling a mobile terminal application” to perform a command event. ’052 Patent at 1:16–20. Figure 1 shows an exemplary terminal **100** with “an application executing unit **110**, a gesture identifying unit **120**, a command event verifying unit **130**, an application controlling unit **140**, a registration unit **150**, an event table **160**, and a display screen **170**.” *Id.* at 4:28–34 (discussing Fig. 1). The specification then provides at least one way of how it performs the claimed function:

Specifically, the gesture identifying unit **120** may analyze an outline, shape, or path along which a pointer contacts the display screen **170**. The pointer may contact the display. . . . The gesture identifying unit **120** then may identify, in the event table **160**, a gesture corresponding to the analyzed shape within an allowable range.

Id. at 7:29–41; *see also id.* at 8:8–10 (“the gesture identifying unit **120** may identify, in the event table **160**, a gesture **810** corresponding to the contact signal”); *id.* at 8:25–27 (similar); *id.* at 8:42–44 (similar). Because these excerpts clearly link the “analyzing” and “identifying” steps to the claimed function, the Court holds the corresponding structure for this means-plus-function term as “a processor programmed to (1) analyze an outline, shape, or path along which a pointer contacts the display screen when a control interface of a target application is not displayed; and (2) identify, in an event table in which at least one gesture had been registered, a gesture corresponding to the analyzed outline, shape, or path within an allowable range.”

X. DISPUTED TERMS FROM U.S. PATENT 9,063,654

A. Background

The '654 Patent relates “to a smart touch technology to support a display of an overlapped object.” '654 Patent at 1:15–17. Generally, one of many target objects on a display may be selected by a touch input on the user interface (UI) of the device. *Id.* at 1:19–23. But if the objects are close together, this may cause inaccurate selection and thus the execution of the wrong object. *Id.* at 1:24–30.

In what the '654 Patent calls “smart touch operation,” the claimed method detects a “touch region” on the display and then identifies objects within that touch region by a reference percent. For example, if Objects 1–4 are 55%, 21%, 9%, and 15%, respectively, within the touch region, and the reference percentage is 15% or lower, Objects 1, 2, and 4 are a “first object.” *See id.* at 3:26–37. The method then generates and displays, outside of the touch region, a number of “second objects” based on the “first objects.” For example, in Figure 4, which is a digital keyboard, the “first objects” are letters and the “second objects” are the larger and easier-to-select versions of the first objects. *Id.* at Fig. 4; *id.* at 7:6–48. In Figure 5, which shows a subway route map, the “first objects” are representations of subway stations and the “second objects” are more detailed information about the stations in the touch region. *Id.* at Fig. 5; *id.* at 7:49–8:10. Similarly, Figure 6 shows a webpage or document where the “first objects” are portions of words and the “second objects” are the words in their entirety. *Id.* at Fig. 6; *id.* at 8:11–45.

The patent includes three independent claims, of which Claim 1 is representative:

1. A terminal apparatus, comprising:
 - an interface to detect a touch input, to detect a touch region corresponding to the touch input, and to identify an object that is overlapped by the touch input in the touch region as a first object;

a processing unit to generate a second object based on the first object, and to display the second object in an untouched region; and

a control unit to execute an operation corresponding to the second object if the second object is selected,

wherein the control unit removes the display of the second object if the second object is not selected within a reference period of time.

'654 Patent at 11:14–26.

B. “processing unit to generate a second object based on the first object, and to display the second object in an untouched region” ('654 Patent, Claim 1)

| Pantech's Construction | OnePlus's Construction |
|---|---|
| Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) | Means plus function claim limitation under 35 U.S.C. § 112 ¶ 6 Function: generate a second object based on the first object, and to display the second object in an untouched region Structure: None (Indefinite) |

The parties first dispute whether this is means-plus-function term. Relying on the presumption it is not a § 112 ¶ 6 term given the absence of the word “means,” Pantech also urges “processing unit” is another word for “processor,” and the claim includes a description of the structure’s operation. Dkt. No. 37 at 26 (citing *Dyfan*, 28 F.4th at 1366). As with the other possible means-plus-function terms, OnePlus claims this term is simply a generic placeholder for a general purpose computer, and the specification contains no corresponding structure in the form of an algorithm. Dkt. No. 40 at 27.

For similar reasons to those set forth *supra*, the Court concludes this is not a means-plus-function term. First, because the term does not use “means,” the Court presumes this is not a § 112 ¶ 6 term, and OnePlus presents no evidence or persuasive argument rebutting that presumption.

See Dyfan, LLC, 28 F.4th at 1370 (“In the absence of the word ‘means,’ Target bore the burden of demonstrating by a preponderance of the evidence that the ‘system’ limitation in the wherein clause fails to recite sufficiently definite structure.”). Moreover, the Court concludes “processing unit” connotes a specific structure—a processor. Finally, the limitation combines a known structure with a description of its operations. Accordingly, the Court will give this term a “plain and ordinary meaning” construction.

C. “control unit to execute an operation corresponding to the second object if the second object is selected” (’654 Patent, Claim 1).

| Pantech’s Construction | OnePlus’ Construction |
|---|--|
| Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) | Means-plus-function claim limitation under 35 U.S.C. § 112 ¶ 6 Function: execute an operation corresponding to the second object if the second object is selected ... removes the display of the second object if the second object is not selected within a reference period of time Structure: None (Indefinite) |

This dispute is like the dispute about “processing unit.” In fact, OnePlus briefs them together, arguing “control unit” is a generic placeholder and the specification discloses no corresponding structure performing the function. Dkt. No. 40 at 27. And again, Pantech relies on the presumption this is not a means-plus-function term combined with various aspects of the claims and specification. Dkt. No. 37 at 27 (citing ’654 Patent at 1:19–22).

This is not a means-plus-function term. While “unit” may be a nonce term in some contexts, both the claims and the specification provide sufficient context such that a skilled artisan would recognize the “control unit” in the claim as a processor. For example, not only must the “control unit” of Claim 1 “*execute an operation* corresponding to the second object if the second object is selected,” but it “*removes the display* of the second object if the second object is selected.” ’654

Patent at 11:22–26 (emphasis added). Moreover, Figure 1 shows the control unit **105** connected to both the processing unit **103** and the interface **101**. *Id.* at Fig. 1; *see also id.* at 5:46–48 (“The control unit **105** may control the interface **101** to restrict a selection of a first object while a second object is being displayed.”). Finally, Pantech proffers un rebutted testimony that “control unit” is another term for “processor.” Dkt. No. 37 at 27 (citing Vojcic Decl., Dkt. No. 37-1 ¶ 146). This term will be given a “plain and ordinary meaning” construction.

D. “wherein the control unit removes the display of the second object if the second object is not selected within a reference period of time” (’654 Patent, Claim 1); “removing the display of the second object if the second object is not selected within a reference period of time” (’654 Patent, Claim 12)

| Pantech’s Construction | OnePlus’s Construction |
|----------------------------|--|
| Plain and ordinary meaning | <p>“wherein the control unit selectively removes the display of the second object if the second object is not selected within a reference period of time for displaying the second object” (claim 1)</p> <p>“selectively removing the display of the second object if the second object is not selected within a reference period of time for displaying the second object” (claim 12)</p> |

The parties dispute whether this limitation “encompasses turning the display off entirely.” Dkt. No. 42 at 10; *see also* Dkt. No. 40 at 29 (“Turning off the display entirely after an arbitrary amount of time, unrelated to the display of the second object, was neither contemplated under the claim language nor . . . the specification.”). In Pantech’s view it does. Dkt. No. 37 at 29 (stressing this limitation has an easily understood meaning, and accusing OnePlus of adding confusing and unjustified language). OnePlus asserts both the specification and prosecution history undercut Pantech’s contention. *Id.* (quoting ’654 Patent at 5:49–52, and citing Resp. to Office Action (Jan. 22, 2015), Dkt. No. 40-8 at 2, 8).

OnePlus’s prosecution-history argument is not particularly helpful. At most, it shows the

applicants added the limitation from then-pending Claim 12, which the Office indicated was allowable. The applicants' remarks make no reference to an interpretation of the limitation helping, or for that matter hurting, OnePlus's position.

Without commenting on unbriefed issues of infringement, OnePlus's appears to have the better claim construction position that merely having the screen go off or idle after an arbitrary amount of time would not, *by itself*, fall within this claim scope. The specification makes only one reference to this limitation, which supports OnePlus's position:

[I]f a second object is not selected within a reference time period after the second object is displayed, the control unit 105 may remove the display of the second object and may return to an idle state for a selection or touch of a first object.

'654 Patent at 5:49–52. Also importantly, nothing in the specification describes the invention as relating to whether the display is turned off. Figure 7, for example, does not start with “TURN ON THE DISPLAY” or end with “TURN OFF THE DISPLAY.” Instead, the invention is always described in an environment where the display is always on.

Pantech argues these are exemplary embodiments and the language is easily understood as a matter of plain English, but this shows Pantech takes more of a “broadest reasonable interpretation” approach to construing this term. Here, a skilled artisan would read the limitation considering the specification's focus on generating a second object from a first object. In that light, the concept behind OnePlus's construction is more appropriate.

That said, OnePlus's use of “selectively” could cause confusion and is at best superfluous. The inclusion of “for displaying the second object” sufficiently addresses the issue by tying the limitation to not just any time, but the time the second object is displayed. Accordingly, the Court construes these terms as “wherein the control unit removes the display of the second object if the second object is not selected within a reference period of time for displaying the second object”

and “removing the display of the second object if the second object is not selected within a reference period of time for displaying the second object.”

XI. CONSTRUCTION OF AGREED TERMS

The parties agreed to the construction of the following claim terms in their briefing:

| Term | Agreed Construction |
|--|---|
| cause the apparatus to transmit the random access preamble according to a non-contention selection, through CC one or more UL CCs '954 Patent, Claim 6 | Understood as: cause the apparatus to transmit the random access preamble according to a non-contention selection, through one or more UL CCs |
| receiving, at the UE, a random access response through the primary CC '954 Patent, Claims 1 and 6 | Plain and ordinary meaning |
| wherein said indexes are determined according to ratio $n' n'_{l_i}/n'_o$ or ratio n'_{l_i}/n'_i in OFDM, having index l'_i , '839 Patent, Claim 1 | Understood as: wherein said indexes are determined according to ratio $n' n'_{l_i}/n'_o$ or ratio n'_{l_i}/n'_1 in OFDM, having index l'_i , having index l'_i , |
| n'_o is the number of available resource element groups in OFDM symbol, having index 0, of a sub-frame '839 Patent, Claim 9 | Understood as: n'_o is the number of available resource element groups in OFDM symbol, having index 0, of a sub-frame |
| available resource element groups in the OFDM symbol, having index l'_1 , are resource element groups which can be used for PHICH transmission in the OFDM symbol, having index l'_i . '839 Patent, Claim 9 | Understood as: available resource element groups in the OFDM symbol, having index l'_i , are resource element groups which can be used for PHICH transmission in the OFDM symbol, having index l'_i . |
| displaying a transmission progress of selected contents while transmitting the selected contents '490 Patent, Claim 1 | Understood as: displaying a transmission progress of the selected contents while transmitting the selected contents |

| | |
|--|---|
| display a transmission progress of selected contents while the selected contents are being transmitted '490 Patent, Claim 5 | Understood as: display a transmission progress of the selected contents while the selected contents are being transmitted |
|--|---|

In view of the parties' agreement on the proper construction for the above-identified terms, the Court hereby **ADOPTS** the parties' agreed constructions.

XII. CONCLUSION

The Court **ADOPTS** the agreed claim constructions and **ORDERS** the following claim constructions of the disputed terms:

| Disputed Term | The Court's Construction |
|--|---|
| U.S. Patent 10,869,247 | |
| “processor . . . configured to cause the WTRU to: transmit . . . ; receive . . . ; and determine whether to retransmit . . . ” (Claim 1) | Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) |
| U.S. Patent 11,012,954 | |
| “eNB” (Claims 1, 4, 6, 9) | Plain and ordinary meaning |
| “wherein the processor, when executing program instructions stored in the memory, is configured to: cause the apparatus to receive a Radio Resource Control (RRC) message . . . cause the apparatus to receive information indicating a random access preamble . . . cause the apparatus to transmit the random access preamble . . . cause the apparatus to receive a random access response . . . cause the apparatus to apply each TA value” (Claim 6) | Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) |
| U.S. Patent 11,172,493 | |

| Disputed Term | The Court's Construction |
|--|---|
| <p>“when the RRC message indicates that a single control bit in the bitmap is associated with the WTRU, control an uplink transmission of the WTRU using the obtained single control bit; and when the RRC message indicates that multiple control bits in the bitmap are associated with the WTRU, control an uplink transmission of the WTRU using the obtained multiple control bits” (Claims 1, 3)</p> | <p>Plain and ordinary meaning</p> |
| <p align="center">U.S. Patent 9,548,839</p> | |
| <p>l_i (Claims 1–4, 9–12)</p> | <p>“an index of an OFDM symbol in which the i-th repetition of a PHICH group is transmitted.”</p> |
| <p>“a processor configured to determine indexes of resource element groups in which the PHICH is transmitted, and decode the PHICH mapped to at least one OFDM symbols according to the determined indexes” (Claim 9)</p> | <p>Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) (“at least one OFDM symbols” means “at least one OFDM symbol”)</p> |
| <p>“at least one OFDM symbols . . . in OFDM symbol . . . in the OFDM symbol . . . in OFDM symbol . . . in OFDM symbol . . . in the OFDM symbol . . . in the OFDM symbol” (Claims 1, 9)</p> | <p>Plain and ordinary meaning (“at least one OFDM symbols” means “at least one OFDM symbol”)</p> |
| <p align="center">U.S. Patent 10,162,490</p> | |
| <p>“displaying the selected contents sequentially on a display of the mobile terminal (Claim 1) a display to display the selected contents sequentially in the message form” (Claim 5)</p> | <p>Plain and ordinary meaning</p> |
| <p>“message form” (Claims 1, 5)</p> | <p>“MMS message”</p> |

| Disputed Term | The Court's Construction |
|--|--|
| U.S. Patent 8,587,710 | |
| <p>“picture” (Claims 1, 2, 6, 19)</p> | <p>Plain and ordinary meaning</p> |
| <p>“images” (Claims 1, 12, 13, 15, 19)</p> | <p>Plain and ordinary meaning</p> |
| <p>“action detector to detect a specific action from the images captured by the camera” (Claim 1)</p> | <p>Governed by 35 U.S.C. § 112 ¶ 6</p> <p>Function: “detecting a specific action from the images captured by the camera”</p> <p>Structure: “a processor programmed to (1) recognize variations in the positions of feature points over time; and (2) compare the variations to stored action setting information to detect (or not detect) a specific action.”</p> |
| <p>“picture controller configured to control the picture displayed on the display in association with the location on the display if the specific action is detected by the action detector” (Claim 1)</p> | <p>Governed by 35 U.S.C. § 112 ¶ 6</p> <p>Function: “controlling the picture displayed on the display in association with the location on the display if the specific action is detected by the action detector”</p> <p>Structure: “a processor programmed to (1) receive from the action detector an indication of a detected specific action; (2) compare the detected specific action to stored information associating the specific action with a control of the displayed picture in association with the picture's location on the display; and (3) control the displayed picture in association with the picture's location on the display based on the results of the comparison.”</p> |

| Disputed Term | The Court's Construction |
|--|---|
| U.S. Patent 8,893,052 | |
| <p>“gesture” (Claims 1, 10)</p> | <p>“A sort of image identified when a contact signal is generated on a display screen of a mobile terminal, and may be an image coinciding with an outline, shape, or path followed by a pointer generating the contact signal on the display screen.</p> |
| <p>“application selection gesture” (Claims 1, 10)</p> | <p>Plain and ordinary meaning</p> |
| <p>“target application control gesture” (Claims 1, 10)</p> | <p>Plain and ordinary meaning</p> |
| <p>“gesture identifying unit” (Claims 10, 18)</p> | <p>Governed by 35 U.S.C. § 112 ¶ 6</p> <p>Function: “identifying a target application control gesture corresponding to a contact signal, the contact signal being generated on a display screen in which a control interface of a target application is not displayed”</p> <p>Structure: “a processor programmed to (1) analyze an outline, shape, or path along which a pointer contacts the display screen when a control interface of a target application is not displayed; and (2) identify, in an event table in which at least one gesture had been registered, a gesture corresponding to the analyzed outline, shape, or path within an allowable range”</p> |
| U.S. Patent 9,063,654 | |

| Disputed Term | The Court's Construction |
|---|---|
| “processing unit to generate a second object based on the first object, and to display the second object in an untouched region” (Claim 1) | Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) |
| “control unit to execute an operation corresponding to the second object if the second object is selected” (Claim 1) | Plain and ordinary meaning (not governed by 35 U.S.C. § 112 ¶ 6) |
| “wherein the control unit removes the display of the second object if the second object is not selected within a reference period of time” (Claim 1) “removing the display of the second object if the second object is not selected within a reference period of time” (Claim 12) | “wherein the control unit removes the display of the second object if the second object is not selected within a reference period of time for displaying the second object” “removing the display of the second object if the second object is not selected within a reference period of time for displaying the second object.” |

The Court **ORDERS** each party not to refer, directly or indirectly, to its own or any other party's claim-construction positions in the presence of the jury. Likewise, the Court **ORDERS** the parties to refrain from mentioning any part of this opinion, other than the actual positions adopted by the Court, in the presence of the jury. Neither party may take a position before the jury that contradicts the Court's reasoning in this opinion. Any reference to claim construction proceedings is limited to informing the jury of the positions adopted by the Court.

SIGNED this the 4th day of August, 2023.


 J. Boone Baxter
 UNITED STATES MAGISTRATE JUDGE